

Strategic Research Plan 2016 – 2021

Introduction

The University of the Fraser Valley (UFV) fosters and enables the essential and interrelated nature of teaching, research, and service to the community. In particular, UFV faculty and students are committed to conducting research of the highest quality, meeting or exceeding scientific and professional standards. They are actively involved in various types of research, scholarly, and other creative activities in numerous disciplines. UFV supports individual and collective research in all of its program areas, and encourages and facilitates multi-disciplinary and trans-disciplinary research between disciplines. At UFV, teaching and research are intimately related, and the present plan seeks to enrich the learning experience of our students by providing as many research opportunities as possible.

The three major strategic goals adopted by the University of the Fraser Valley are to:

- Provide the best undergraduate education in Canada
- Be a leader of social, cultural, economic, and environmentally responsible development in the Fraser Valley, and
- Be innovative, entrepreneurial, and accountable in achieving our goals.

Accordingly, the University is committed to offering programs which use the best pedagogical practices, encourage creative thinking, actively engage students in applied research opportunities, and are set in a regional context at both small and large scales. UFV is committed to sustaining existing and ongoing research and scholarly activities that faculty have developed and cultivated to date. But it also recognizes that fields are constantly changing and in response, committed to developing and enabling new directions in research and scholarly activities as indicated by the recommendations of the 2012 Research Task Force on Research and Scholarship, the 2013 Strategic Enrolment Management (SEM) Plan and UFV *Vision 2025*.

This Strategic Research Plan supports the University's three strategic goals and aligns with ROSA, SEM, the Education Plan and *Vision 2025* by:

- Facilitating the integration of research and teaching, and increasing the number of research opportunities for students;
- Promoting and supporting the research, scholarly, and creative activities of faculty members;
- Enabling research and scholarly activity that is imaginative, innovative, and/or entrepreneurial;
- Supporting and enabling research and scholarly activity grounded in the University's regional setting;
- Developing multi-disciplinary and collaborative research programs; and
- Cultivating new directions in research and scholarly activity that build on existing expertise while responding to changing economic and technological contexts.

Goals of the Strategic Research Plan

1. Integration of research and teaching and increased research opportunities for students will be achieved by:
 - a. Supporting the development and implementation of research-based or inquiry-based curricula
 - b. Encouraging innovative ways of integrating research and teaching
 - c. Increasing number of opportunities for student involvement in research
 - d. Increasing the number of paid research assistantships for students
 - e. Supporting students' presentations of their research at academic and professional conferences
2. Facilitation of research and scholarly activity that is innovative and entrepreneurial will be achieved by:
 - a. Increasing faculty participation and success rates in seeking and securing funding from the major granting Councils and other specialized sources of research funding
 - b. Exploring opportunities for funded research opportunities in cooperation with industry, community partners and foundations and other potential corporate or non-profit funders
 - c. Encouraging the development of research programs related to and made possible by technological change or revolution.
3. Increased support for faculty members' research, scholarly, and creative activities will be achieved by:
 - a. Increasing faculty participation in research, scholarly, and creative activities that support student learning
 - b. Ensuring that faculty have access to timely and useful information about research and research funding opportunities
 - c. Supporting the dissemination and publication of the results of faculty research
 - d. Enhancing technological and information resources, including library collections, in support of research and scholarly activities.
4. Research and scholarly activity that is grounded in, and relevant to, a regional setting will be achieved by:
 - a. Prioritizing research options and scholarly activities that serve the cultural, social and environmentally sustainable development of the Fraser Valley
 - b. Cultivating applied and collaborative research opportunities with regional industry, government and non-profit agencies
 - c. Developing and supporting research in the scholarship of teaching and learning.
5. Increasing the number of multidisciplinary and collaborative research programs and activities will be achieved by:
 - a. Increasing institutional support for research themes consistent with established research programs, institutional goals and/or strategic enrolment management
 - b. Identifying and actively pursuing collaborative research opportunities
 - c. Strengthening the role and capacity of the University's research centres, institutes, and laboratories as practical vehicles for interdisciplinary collaboration.

6. Cultivation of new directions in research and scholarly activity will be achieved by:
 - a. Supporting and incentivizing faculty led initiatives that facilitate expansion of existing research programs adaptable to changing contexts
 - b. Entering into strategic local, regional, national and international partnerships with other academic institutions and non-profit service providers
 - c. Encouraging and supporting research and scholarly activity in growth areas identified in institutional plans
 - d. Encouraging partnerships with industry and business.

Major Strategic Themes

In the 2016-21 Strategic Research Plan, UFV has identified five major strategic themes to develop its research capacity, output and impact. These themes have been selected to be aligned with both existing research strengths and capacities and new directions related to or anticipated by UFV *Vision 2025*, Research Option/Scholarly Activity Program (ROSA), and the Strategic Enrolment Management Plan (SEM).

The themes listed in alphabetical order are:

- Community, Justice, and Cultural Engagement
- Environment and Sustainable Development
- Human Development, Health and Well Being
- Teaching, Learning, and Cognition
- Technology, Modelling and Applications

1. Community, Justice, and Cultural Engagement

UFV recognizes and values the diversity of the peoples of the Fraser Valley and will continue to partner with various communities and organizations to pursue research in the areas of culture, citizenship, peace and justice, and human rights. This will involve, among others, the faculty and students involved in the Centres for Social Research, Global Development, Indo-Canadian Studies, and Peace and Conflict Studies.

Research in this area will be conducted in:

- a. Culture, social values, race, economic conditions, gender, religion, and ethnicity in relation to citizenship, community, identity and peace and justice. This will build on existing research conducted by faculty who study areas such as Canadian identity, education and the rights of the child, peace and conflict resolution, and social justice; and further supported by the Teaching Chair in Peace and Conflict Studies.
- b. Indigenous issues, history, education, language and traditions, including collaborative research with the Stó:lō Nation, on whose traditional territory UFV is located; other indigenous peoples and organizations; and as informed by the recommendations of the Truth and Reconciliation Commission. This research presently involves faculty from Geography, History, Social Work and Human Services, Social, Cultural and Media Studies and Indigenous Studies.
- c. Justice, causes of crime, crime prevention and reduction, and criminal justice policy. This research will include the evaluation of public safety initiatives; the study of alcohol and drug

- abuse, gambling and child safety; violence in communities, juvenile crime and intervention; and be supported through RCMP Research Chair in Crime Reduction, a high security crime analysis lab, and the Centre for Public Safety and Criminal Justice. It will also include scholarship in the areas of justice and security sector reforms, justice restoration in post-conflict societies, and transnational organized crime, human trafficking and terrorism.
- d. Issues and questions of interest to the Indo-Canadian community, including history, education, language and traditions, and access to health care and other services. This work will focus on Canada-India trade, business and cultural relations, including the work of the BC Regional Innovation Chair on Canada-India Business, Community, and Economic Development, and will continue to be facilitated by the Centre for Indo-Canadian Studies.
 - e. The creative arts are and will remain a key contributor to the development and the role of technical assistance and international development policies and interventions in alleviating poverty, advancing human rights and promoting social justice. The Centres for Global Development and Social Research will continue to provide a focal point for these research and demonstration activities.

2. Environment and Sustainable Development

The Fraser Valley has a diverse and still a comparatively healthy natural environment. It is also one of the most important agricultural regions of the country due to its relatively mild climate and fertile soil. At the same time, as agricultural production has intensified, the valley's population continues to be one of the fastest growing areas in Canada. This raises important challenges in terms of sustainable development and the protection of the natural environment, which makes research in the relationship between agriculture, social and economic development, sustainability, and food and water safety and security mandatory.

Research in this area will be conducted in:

- a. Food and water safety and security, the use of the Agricultural Land Reserve, and productive and sustainable agricultural practices and technologies. This work will be conducted in collaboration with agriculture-food industry, local and regional governments, not for profit organizations and will be supported by Agriburban Research Centre and the Tier II, Canada Research Chair in Environment and Food Security, and the Agriculture Centre of Excellence.
- b. The application of glacial geology, sedimentology, stratigraphy, and geomorphology, to understand the behavior of the last Cordilleran Ice Sheet; and the character and timing of long-term postglacial environmental change in western Canada. This research will help predict how the landscape might adjust to climate change, and it is supported by the University's Luminescence Dating Laboratory.
- c. The application of paleoecological information to understanding the response of vegetation to past earthquakes, fires, floods, climatic shifts; and the anthropogenic modifications of the landscape. This work will contribute to our knowledge of environmental and regional change and help us develop better predictive models and risk management strategies for the preservation of natural or modified habitats, and is supported in part by the University's Paleoecology Laboratory.
- d. Increasing our understanding of past and present human-environment relations in a bioregional context including conceptions and expressions of cultural informed relationships to place, and the impact of economic development on the natural and modified habitats of the Fraser Valley.

- e. Theories, methods and strategies to facilitate sustainable human, social, environmental and economic development in both developing and Western contexts, and as supported by the Centres for Global Development, Peace and Conflict Studies and Social Research.
- f. Studies of environmental degradation that impact life, health and community well-being will require multidisciplinary and trans-disciplinary approaches across disciplines of biology, chemistry, ecology, earth sciences, agriculture, geography, mathematics and statistics, computing science, and physics. The University will support research in surface and subsurface water pollution, toxicology, air and soil pollution, climate change, invasive species and habitat loss and will be supported by the Agriculture Centre of Excellence and the anticipated Tier 1 Canada Research Chair in Health and Community.

3. Human Development, Health, and Well Being

Human health and wellness will remain a priority research area for the University. This will build on current research programs in Kinesiology, Nursing, Psychology, Social, Cultural and Media Studies, Early Childhood Education/Child and Youth Care, Social Work and Human Services, the Centre for Education and Research on Aging, and, the Centre for Social Research, and will be supported by both the existing Tier II Chair in Food Security and the appointment of a Tier I Canada Research Chair in Health and Community.

Research in this area will be conducted in:

- a. Child development, child welfare, and family studies will focus on creating conditions for improved child safety, health families, and can expect increased multi-disciplinary collaborations between professional practices in social work, child and youth care, health sciences and policy, methodological and theoretical studies in criminal justice, sociology, and human geography.
- b. Substance abuse or misuse, and co-occurring disorders, with a focus on the relationships between mental health and addictions and depression, and homelessness and its personal, familial and community causes and effects. This work will overlap with research and scholarly activities in culture, social values, race, economic conditions, gender, religion, and ethnicity, Indigenous studies, community development and the creative arts.
- c. The impact of physical activity on the motor ability of children with Fetal Alcohol Spectrum Disorder (FASD); mild traumatic brain injury assessment and management and the effects of exercise, physical activity, and an active lifestyle on overall health and wellness. This work will build on expertise in Health Sciences, Biology, Kinesiology, and Social Work, and intersects with research and scholarly studies in sustainable development, urban and per-urban studies, human geography, and the creative arts.
- d. Studies of health issues relating to an aging population will be relevant to a key demographic characteristic of the University's regional setting. Work in this area will draw on expertise in human geography, philosophy, history, Indigenous studies, anthropology, sociology, health science, kinesiology, psychology, and the Centre for Education and Research on Aging to examine and promote best practices in the understanding of cultural conceptions of aging; policy and community and provincial governance, service provisions, and education.

4. Teaching, Learning and Cognition

UFV attaches great importance to the scholarship of teaching and learning. Student involvement in inquiry learning and research provides unique opportunities for students to develop and acquire essential skills including analytical thinking, critical thinking, an ability to relate practice to theory, and communication skills. Gathering evidence of the effectiveness of new pedagogical methods and technologies is essential for achieving the University's strategic goals.

Research in this area will be conducted in:

- a. The field of learning and cognition, and, in particular on how students learn, how learning can be supported through research, inquiry-based methods and high impact practices. This research explores and tests new pedagogical methods and approaches including online, experiential, place-based learning and the use of new technologies in support of teaching and learning. This will involve research in the disciplines and across disciplines such as Education, Adult Education, and Psychology as well as teaching and learning.
- b. Universal design and accommodation in the classroom, including a focus on how faculty can modify curricula, or the university can modify its physical and virtual spaces to be more welcoming to students with different cultural backgrounds, variable linguistic skills and levels of cognition, and differential abilities.

5. Technology, Modelling and Applications

Technological innovation and adaptation have always been important social, economic and cultural drivers, but especially so with the development of the internet and digital revolution in computing, visualization, and three dimensional modelling. Electronic communication is a global phenomenon, complicating traditional concepts of boundaries and the ways in which classes, genders and cultures interact with one another. Computer modelling is revolutionizing the creative arts and the physical sciences, and the information highway is the digital encyclopedia accessible by anyone. Disciplines already engaged in research in this area include Visual Arts, Chemistry, Biology, Physics, Computer Science, Geography, and Communications.

Research in this area will be conducted in:

- a. Molecular science, a multidisciplinary and interdisciplinary field where physics, chemistry, biology, mathematics and statistics and computer science meet in a cooperative effort to better understand atomic, molecular, and supramolecular systems and their technological potential. This is a growing area of experimental and theoretical research and includes molecular biology and genetics, molecular modelling, bioinformatics, and optical and subatomic physics.
- b. Geographic Information Systems (GIS) and Geo Science, where disciplines as diverse as Geography, Physics, Media and Visual Arts collaborate in developing new ways of the imaging of landscape, the interrelationships between urbanization, land cover, and stream water and quality, and time series analyses of land use change and climate modelling. GIS is also revolutionizing the social sciences, including crime and hazard mapping and land use and occupancy studies for Indigenous land claims.
- c. Agriculture and Sustainable Development, where, with support from the Centre of Agricultural Excellence, Agriburban Research Centre, the Tier II CRC in Environment and Food Security, UFV faculty and students explore the use of technology in agri-business, quality assurance, food safety management and food security. Still the most important

- single industry in the lower Fraser Valley, agriculture and its choices and practices are inevitably related to human health and wellness, environmental sustainability and community justice and equality. Disciplines poised to develop innovative and entrepreneurial research that works with community partners in industry, service and municipal government include Biology, Agriculture, Geography, Sociology, Health Sciences, and a range of trades-related professions.
- d. Visualization and three dimensional modelling, in which digital media technologies are making possible new ways of storing, manipulating and transmitting visual data in photography, painting, and graphic and digital design. This area, also overlaps and is complementary with geographic information systems. These technologies are also revolutionizing library storage and information retrieval, and making possible universal access to resources in anthropology, archaeology and history that were previously only available by physical contact.

Planning and Approval Process

The present plan was developed in consultation with the University's Research Advisory Council, UFV faculty, UFV students, and all Faculty Councils and is to be approved by the Senate and Board of Governors.

Assessment of the Plan

Each of the six major goals and related objectives of this plan will produce measureable outcomes and will be reviewed and assessed every year over the five year period.

Our goal of integrating research and teaching and increasing research opportunities for students involves five main objectives. Indicators of successful achievement of these objectives include the number of new courses developed to maximize the integration of research and teaching, and the number of students involved in research activities, publishing in peer reviewed journals, presenting at conferences, and applying for and being awarded graduate scholarships.

The indicators for the goal of facilitating innovative and entrepreneurial research and scholarly activity include the number of partnerships with industry, community partners and foundations and the number of research programs related to or developed by technological change.

The indicators used to measure progress in achieving these objectives, our goal of increased support for faculty members' research, scholarly, and creative activities include the number of successful applications to national granting councils and other research funding organizations, the number of studies published in refereed publications, peer-reviewed monographs and books, the number of presentations at academic and professional conferences, and the number, amount and method of communications used to provide information on research and research funding opportunities.

Evaluation of the fourth goal of conducting research relevant to our regional setting will use indicators such as number of research options / scholarly activities related to the regional setting and the number of research opportunities and partnerships with regional industry, government and non-profit agencies.

The goal of increasing the number of multidisciplinary and collaborative research programs and activities will be measured using indicators of the amount of institutional support for these programs (financial, personnel, student, space); the number of identified and pursued collaborative research opportunities; and the activity of the research centres and laboratories.

The cultivation of new directions in research and scholarly activity will be measured using indicators of the number of faculty led initiatives that facilitates the expansion of existing research programs and the resources to support such initiatives; the number of strategic partnerships at local, regional, national and international levels with other academic institutions and non-profit organizations; the amount of research and scholarly activity in growth areas identified in institutional plans; and the number of partnerships with industry and business.